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ABSTRACT

2 Methods and apparatus for closed-case removable expansion
3 cards having a removable memory enhance the utility of
4 portable computer hosts, such as PDAs. In both a first and
5 second embodiments the closed-case removable expansion cards
6 preferably use a Type II CompactFlash form factor. In the
7 first embodiment the removable memory is in combination with
8 an external-I/O connector or attached external-I/O device,
9 providing both I/O and memory functions in a single closed-
10 case removable expansion card. This increases the expansion
11 functional density for portable computer hosts, such as PDAs.
12 That is, it increases the amount of functionality that can be
13 accommodated within a given volume allocation for expansion
14 devices. In the second embodiment the removable memory is a
15 private memory for application specific circuitry within the
16 closed-case-removable expansion card. This enhances the
17 utility of portable computer hosts, such as PDAs, as universal
18 chassis for application specific uses. The standard
19 CompactFlash physical and electrical interface couples the
20 application specific card to the host, which provides user
21 interface functions for the application. The cards include a
22 top located slot and an internal connector for accepting a
23 MultiMediaCard as the private removable memory. In addition,
24 the application specific card will generally have some manner
25 of I/O to required external devices, such as scanning devices,
26 sensors, or transducers. Otherwise, all functionality for the
27 application specific function is self-contained within the
28 application specific card.